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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/840,085	04/24/2001	Alanna Schepartz Shrader	YU-P01-021	2186

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EXAMINER	
MAHATAN, CHANNING	

ART UNIT	PAPER NUMBER
1631	

DATE MAILED: 03/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/840,085	SHRADER ET AL.	
	Examiner	Art Unit	
	Channing S. Mahatan	1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6 and 12-23* is/are pending in the application.

4a) Of the above claim(s) *14-18 and 20-22* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,12,13,19 and 23* is/are rejected.

7)☒ Claim(s) *1-6,12,13 and 23* is/are objected to.

8)☒ Claim(s) *1-6 and 12-23* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 November 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

APPLICANTS' ARGUMENTS

Applicants' arguments, filed 02 July 2003, have been fully considered but they are not deemed to be persuasive. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application. Additionally, with respect to Applicants' statement in the 'Response' filed 02 July 2003, which is the following:

> "Applicants note that the Examiner has acknowledged Applicants' election of Group I (claims 1-13 and 19) and SEQ ID NO: 23 as a sequence species, in Paper 9 filed on October 8, 2002."

This is statement is incorrect, per se, wherein Applicants have elected SEQ ID NO: 23 that is part of a sequence restriction requirement, found to be a separate and patentably distinct invention (refer to the 'Restriction/Election Requirement' mailed 02 July 2002; and the 'Non-Final Office Action' mailed 29 January 2003). Applicants are reminded of the following:

> "Each sequence is patentably distinct because they are unrelated sequences... It is noted that this is a restriction requirement to a single sequence and NOT a species election requirement... different proteins are structurally distinct chemical compounds and are unrelated to one another...".

which was set forth in both the 'Restriction/Election Requirement' mailed 02 July 2002 and 'Non-Final Office Action' mailed 29 January 2003. Regarding Applicants' arguments pertaining to the Examiner's withdrawal of claims 1-13 for failing to fulfill at least the defined requirement of an avian pancreatic polypeptide is found convincing. Applicants have argued in the 'Response' filed 02 July 2003 that:

> "Instead, these claims explicitly recite "an avian pancreatic polypeptide modified by substitution of at least on amino acid residue." Applicants point out that the polypeptide in claim 19 (e.g. comprising SEQ ID NO:23) is an embodiment of the modified avian pancreatic polypeptide in claims 1-13." ('Response' page 7, lines 5-9)

> "Therefore, one skilled in the art readily understands that the Bcl-2 protein binding miniature proteins as shown in Figure 4 are modified avian pancreatic polypeptides." (page 7, lines 26-28).

Thus, based upon Applicants arguments instant claims 1-6, 12, and 13 (wherein claims 7-11 have been canceled) will be examined in so far as representing the elected SEQ ID NO: 23 and all other sequences other than SEQ ID NO: 23 are withdrawn from examination as being directed to a non-elected invention (note the '*OBJECTION TO CLAIMS*' found below).

CLAIMS UNDER EXAMINATION

Claims herein under examination are claims 1-6, 12, 13, 19, and 23 (new) and SEQ ID NO: 23. Claims 14-18 and 20-22 remain withdrawn from consideration as directed to a non-elected invention.

Claims Rejected Under 35 U.S.C. § 101

LACK OF PATENTABLE UTILITY

Claims 1-6, 12, 13, 19, and 23 are rejected under 35 U.S.C. § 101 because the claimed invention lacks patentable utility due to its not being supported by either a specific, substantial utility, and credible asserted utility or a well established utility.

The sequence listing identifies SEQ ID NO: 23 as a 15 amino acid residue polypeptide sequence. The specification indicates that the SEQ ID NO: 23 is a protein-binding miniature protein isolated from the phage display library capable of binding to Bcl (page 15, lines 10-12 of the Specification). No additional information is provided.

Applicants argue the specification (page 14, lines 21-32; page 15, lines 1-2; Examples 13-16 on page 38-41; and page 41, lines 1-10) teaches that the modified avian pancreatic polypeptide (aPP) miniature protein (comprising SEQ ID NO: 23) binds to Bcl-2 and Bcl-X_L

('Response' page 10, lines 8-10 & 23-30). Applicants have submitted references (Sattler et al. 1997 and Adams 2001) to demonstrate that the occurrence of apoptosis during physiological processes contributes to many diseases is well known in the art at the time of filing ('Response' page 10, lines 10-22). Further, Applicants' appear to be attempting to connect the binding of the modified aPP miniature protein (comprising SEQ ID NO: 23) to a Bcl-2 protein ('Response' pages 10-11, lines 23-30 and 1-13, respectively) and that one skilled in the art would appreciate that such binding "likely promotes apoptosis" and "would have the potential" use in the treatment of certain apoptosis-related diseases (i.e. cancer, autoimmunity, and neurodegenerative disorders). However, Applicants arguments are found unpersuasive for the below reasons.

Absent from the specification is support (as indicated by Applicants) for the claim that the binding of the modified avian pancreatic polypeptide comprising SEQ ID NO: 23 to Bcl-2 and Bcl-X_L promotes apoptosis and therefore the modified avian pancreatic polypeptide has utility in the treatment of diseases. In the absence of said disclosed utility/teaching one of skill in the art would not know at the time of the invention that the avian pancreatic polypeptide comprising SEQ ID NO: 23 binds to Bcl-2 and antagonizes the anti-apoptosis activity of Bcl-2. In regards to the submitted references (Sattler et al. 1997 and Adams 2001) these references fail to state and/or connect the instantly claimed modified avian pancreatic polypeptide miniature protein comprising SEQ ID NO: 23 promotes apoptosis or is even applicable to the treatment of diseases. Finally, the research contemplated by Applicants to characterize potential biological activities, via the language "likely promotes apoptosis"/"would have the potential", does not constitute a specific and substantial utility. Identifying and studying the properties of a protein itself or the mechanisms in which the protein is involved does not define a "real world" context

or use. Because the claimed invention is not supported by a specific and substantial asserted utility for the reasons set forth above, credibility has not been assessed. Neither the specification (as filed) or any art of record discloses or suggests any property or activity for the elected polypeptide compound such that another non-asserted utility would be well established for the compounds.

Claims Rejected Under 35 U.S.C. § 112 1st Paragraph

LACK OF ENABLEMENT

Claims 1-6, 12, 13, 19, and 23 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Specifically, since the claimed invention is not supported by a specific or substantial utility, or, alternatively, a well established utility for the reasons set forth above (Refer to 35 U.S.C. § 101 rejection), one skilled in the art would not know how to use the claimed invention.

Claim Rejected Under 35 U.S.C. § 112 2nd Paragraph

The following is a quotation of the second paragraph of 35 U.S.C. § 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-6, 12, 13, 19, and 23 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

VAGUE AND INDEFINITE

Claims 1 and all claims dependent therefrom, as written, are confusing because they embrace more than the elected invention. The instant claims recite "An avian pancreatic polypeptide modified by substitution of at least one amino acid residue". Applicants are reminded of the election of SEQ ID NO: 23 in the 'Election' filed 02 July 2002. Applicants are requested to amend the claims so that they reflect the elected invention. Clarification of the metes and bounds, via clearer claim language, is requested.

Claims 1, 19, and all claims dependent therefrom recite "An avian pancreatic polypeptide modified by substitution of at least one amino acid residue..." which is considered vague and indefinite. While it is acknowledged that the specification indicates an:

> "Avian pancreatic polypeptide (aPP) is a polypeptide in which residues fourteen through thirty-two form an alpha helix stabilized by hydrophobic contacts with an N-terminal type II polyproline (PPII) helix formed by residues one through eight" (page 3, lines 7-10).

It is unclear what the amino acid sequence that defines an avian pancreatic polypeptide to be such that it would comprise the elected SEQ ID NO: 23? Applicants have submitted in the 'Response' filed 02 July 2004 the following:

> "...one skilled in the art would understand that the Bcl-2 protein binding miniature proteins should have the amino terminal 19 residues (residues 1-19, GPSQPTYPGDDAPVEDLIR) of the BakLIB sequence, in addition to the 15-residue sequences listed in Figure 4." (refer to the 'Response' filed 02 July 2004 page 8, lines 23-26)

> "Since native aPP [avian pancreatic polypeptide] has 36 amino acids...it is impossible for...other sequences (including 4100) [corresponds to SEQ ID NO; 23] to have only 15 amino acid residues (e.g. SEQ ID NO:23). Instead, the length of these sequences should approximate that of aPP." (page 9, lines 3-7).

If it is Applicants contention that the above 19 residues (GPSQPTYPGDDAPVEDLIR) are required amino acid sequences defining an "avian pancreatic polypeptide" and is linked, per se, to the elected SEQ ID NO: 23 (resulting in a 34 amino acid sequence) the claims are not

representative of this. Further, what length of sequence is considered to be an approximate size of an avian pancreatic polypeptide? Clarification of the metes and bounds, via clearer claim language, is requested.

Claims 6, 13, and all claims dependent therefrom recite the limitation "which interaction with another molecule occurs" (claim 6)/"the interaction between the known protein and another molecule is inhibited" which is considered vague and indefinite. The term "interaction" implies some form of or criteria that defines an interaction between the known protein and another molecule, which is unclear. Clarification of the metes and bounds, via clearer claim language, is requested.

PRIORITY IS GRANTED TO APPLICATION 60/271,368

Applicants have submitted that SEQ ID NO: 23 is listed as the carboxyl terminal sequence of the polypeptide sequence (labeled as No. 4100) in Figure 3 of the provisional application No. 60/271,368 filed February 23, 2001; and 2) that "Figure 3 of the provisional application No. 60/271,368 corresponds to Figure 4 of the instant application. For clarification of the record the polypeptide sequence labeled as No. 4100 in Figure 3 of the U.S. Provisional Application No. 60/271,368 is a fifteen amino acid sequence having the sequence: FVGRLLRYFGDEINR. The instantly claimed polypeptide sequence SEQ ID NO: 23 is a fifteen amino acid sequence having the sequence: FVGRLLRYFGDEINR. Thus, as is apparent by comparison of the No. 4100 sequence with SEQ ID NO: 23 the two sequences are the same and priority is granted. It should be noted Applicants have not provided evidence for the claimed priority to U.S. Provisional Applications 60/199,408, 60/240,566, and 60/265099. In the absence of any evidence to the contrary priority to these applications is not granted.

OBJECTION TO CLAIMS

Claims 1-6, 12, 13, and 23 are objected to, wherein a single marker gene election requirement (applicable to all restricted groups) was indicated in the 'Restriction/Election' mailed 02 July 2002. Applicants elected SEQ ID NO: 23 in the 'Response' filed 08 October 2002. However, the instant claims are also currently drawn to non-elected sequences. Therefore, because the instant claims appear to be directed to non-elected inventions these above claims are objected to. Applicants are requested to amend the instant claims to the elected invention (SEQ ID NO: 23).

EXAMINER INFORMATION

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993) (See 37 C.F.R. § 1.6(d)). The CM1 Fax Center number is either 571-273-8300.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Channing S. Mahatan whose telephone number is (571) 272-0717. The Examiner can normally be reached on M-F (8:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ardin Marschel, Ph.D., can be reached on (571) 272-0718.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

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For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

Examiner Initials: CSH

Date: March 19, 2005

Ardin H. Marschel 3/19/05